CLASS 370 MULTIPLEX COMMUNICATIONS

200 **PHANTOM**
201 **CROSSTALK SUPPRESSION**
202 **AMPLITUDE COMPRESSION OR EXPANSION**
203 **GENERALIZED ORTHOGONAL OR SPECIAL MATHEMATICAL TECHNIQUES**
204 . Plural diverse modulation techniques
205 .. Pulse width and pulse position modulation
206 . Quadrature carriers
207 .. Having a signaling constellation
208 . Particular set of orthogonal functions
209 .. Walsh functions
210 . Fourier transform
211 . Level multiplex
212 **PULSE WIDTH (PULSE DURATION) MODULATION**
213 **PULSE POSITION MODULATION**
214 **SIMULTANEOUS TELEGRAPHY AND TELEPHONY**
215 **PHASE MODULATION**
216 **FAULT RECOVERY**
217 . Bypass an inoperative switch or inoperative element of a switching system
218 .. Packet switching system or element
219 ... Standby switch
220 .. Standby switch
221 . Bypass an inoperative station
222 .. In a ring or loop network
223 ... Using a secondary ring or loop
224 .... Loopback of signals on the secondary ring or loop
225 . Bypass an inoperative channel
226 .. In a repeater system
227 ... Using a spare channel
228 .. Spare channel
229 **DATA FLOW CONGESTION PREVENTION OR CONTROL**
230 . Control of data admission to the network
230.1 .. Traffic shaping
231 .. End-to-end flow control
232 .. Based on data flow rate measurement
233 ... Measurement of the peak data flow rate
234 ... Measurement of the average data flow rate
235 . Flow control of data transmission through a network
235.1 .. Using leaky bucket technique
236 .. Including signaling between network elements
236.1 ... Using RM (Resource Management) cells

380/255

236.2 ... Using OAM (Operation, Administration and Maintenance) cells
237 .. Congestion based rerouting
238 .. Least cost or minimum delay routing
238.1 ... ATM least cost routing
239 . Using antijabber circuit
240 .. In a star coupler
241 **DIAGNOSTIC TESTING (OTHER THAN SYNCHRONIZATION)**
241.1 . Using OAM (Operation, Administration and Maintenance) cells
242 . Fault detection
243 .. Of a repeater system
244 .. Of a switching system
245 .. Of a local area network
246 . Of a repeater
247 .. Having a dedicated test line or channel
248 . Path check
249 . Loopback
250 . Of a switching system
251 .. Having dedicated test line or channel
252 . Determination of communication parameters
253 .. Measurement of flow rate of messages having an address header
254 **NETWORK CONFIGURATION DETERMINATION**
255 . Using a particular learning algorithm or technique
256 .. Spanning tree
257 . In a bus system
258 .. In a ring system
259 **SPECIAL SERVICES**
260 . Conferencing
261 .. Technique for setting up a conference call
262 ... Operator setup of the conference
263 .. Conferee signals combined or distributed via time channels
264 ... Using plural diverse channel communications with a dedicated signaling channel (i.e., ISDN)
265 ... Particular technique for combining diverse information types
266 ... Using summation of conferee signals
267 .... Digital summation
268 ..... Including cancellation of certain signals
269 .... Including cancellation of certain signals
270 . Distribution of signal to multiple agent stations
271 . Special feature of multiplex telephone terminal
272 **SEXTUPLEX**
273 **QUADRUPLEX**
274 . Repeater
275 . Duplex diplex
276 **DUPLEX**
277 . Communication over free space

278 .. Transmit/receive interaction control
279 .. Duplex repeaters
280 .. Time division
281 .. Frequency division
282 . Transmit/receive interaction control
283 .. Artificial line
284 .. Differential
285 .. Bridge
286 .. Echo suppression or cancellation
287 ... Disabling or inhibiting
288 ... Using an attenuator
289 ... Having residual echo cancellation or suppression
290 ... Using a particular adaptive filter
291 .... Using a transversal filter
292 ... Using a training sequence
293 . Duplex repeaters or extenders
294 . Time division
295 . Frequency division
296 . Convertible to half duplex
297 **DIPLEX**
298 **LOW SPEED ASYNCHRONOUS DATA SYSTEM (E.G., TELETYPEWRITER SERVICE)**
299 . Data switching exchange
300 . Data assembly or formatting
301 . Transmitting time of transition and logic state
302 . Channels separated in frequency
303 . Rotary distributor
304 .. Synchronizer
305 ... Start-Stop
306 .... Nonmechanical
307 **TRASMULTIPLEXERS**
308 **RESONANT TRANSFER TECHNIQUES**
309 **RESONANT TRANSFER SUBSTITUTES**
310 **COMMUNICATION OVER FREE SPACE**
310.1 . Using ATM as a wireles protocol
310.2 .. Having a plurality of contiguous regions served by respective fixed stations
311 . Signaling for performing battery saving
312 . Message addressed to multiple destinations
313 . Portable address responsive receiver
314 .. Using time division multiplexing
315 . Repeater
316 .. Airborne or space satellite repeater
317 ... Including noise compensation
318 .... Including power control
319 ... Multiple access (e.g., FDMA)
320 .... Code division (CDMA)
321 .... Time division (TDMA)
322 ..... Channel reservation scheme

323 ..... Including onboard switching
324 ..... Synchronization
325 .... Including onboard switching
326 ... Combining or distributing information via time channels
327 .. In a trunking system
328 . Having a plurality of contiguous regions served by respective fixed stations
329 .. Channel assignment
330 ... Having both time and frequency assignment
331 ... Hand-off control
332 .... Based upon a particular signal quality measurement
333 ..... Signal quality determined by bit error rate
334 ..... Using multiple antennas at a station
335 ... Combining or distributing information via code word channels using multiple access techniques (e.g., CDMA)
336 ... Combining or distributing information via time channels
337 .... Multiple access (e.g., TDMA)
338 .. Contiguous regions interconnected by a local area network
339 . Plural usage of common antenna
340 . Using trunking
341 .. Channel assignment
342 . Combining or distributing information via code word channels using multiple access techniques (e.g., CDMA)
343 . Combining or distributing information via frequency channels
344 .. Multiple access (e.g., FDMA)
345 . Combining or distributing information via time channels
346 .. Polling
347 .. Multiple access (e.g., TDMA)
348 ... Channel reservation scheme
349 .. Using messages having an address field as header
350 .. Synchronization
351 **PATHFINDING OR ROUTING**
352 . Combined circuit switching and packet switching
353 .. Switching network having common elements to handle both circuit switched traffic and packet switched traffic
354 .. Switching network having separate elements to handle circuit switched traffic and packet switched traffic
355 .. Routing packets through a circuit switching network
356 .. Routing circuit switched traffic through a packet switching network
357 . Through a circuit switch

358 .. Switching input signals having different aggregate bit rates
359 .. Input or output circuit, per se (i.e., line interface)
360 .. Switching control
361 ... Folded network
362 ... Bus switch
363 .... Having details of control storage arrangement
364 .... Having plural buses
365 ..... Separate transmit and receive buses
366 ... Including serial-parallel or parallel-serial conversion for input or output
367 .... For distribution to a multiplanar switching network
368 .... Having details of control storage arrangement
369 ... Having time and space switches
370 .... Having space switch as intermediate stage (e.g., T-S-T, T-S-S, or S-S-T)
371 ..... Having details of control storage arrangement
372 .... Having time switch as intermediate stage (e.g., S-T-S or T-T-S)
373 .... Having supervisory signaling
374 .... Having details of control storage arrangement
375 ... Time switch, per se (e.g., T or T-T)
376 .... Time slot interchange, per se
377 .... Having supervisory signaling
378 .... Having details of control storage arrangement
379 ..... Data memory addressing
380 ... Space switch, per se (e.g., S or S-S)
381 ... Having details of control storage arrangement
382 .... Data memory addressing
383 .... Control storage addressing
384 ... Having a supervisory signaling feature
385 .... Having a separate signaling network
386 .. Particular switching network arrangement
387 ... Multiplanar switch
388 ... Multistage switch
389 . Switching a message which includes an address header
390 .. Replicate messages for multiple destination distribution
391 .. Switching input signals having different aggregate bit rates
392 .. Processing of address header for routing, per se
393 ... Address concatenation
394 .. Sequencing or resequencing of packets to insure proper output sequence order
395.1 .. Message transmitted using fixed length packets (e.g., ATM cells)
396 ... Distributed switching

397 .... Employing logical addressing for routing (e.g., VP or VC)
398 ... Centralized switching
399 .... Employing logical addressing for routing (e.g., VP or VC)
395.2 ... Connection set-up/disconnect (e.g., Connection Admission Control)
395.21 .... Based on traffic contract (including using setup messages, QoS, delay/bandwidth requirement)
395.3 ... Connection identifier assignment
395.31 .... Including routing table
395.32 ..... Employing particular searching function (e.g., hashing, alternate, re-routing)
395.4 ... Assigning period of time for information to be transmitted (e.g., scheduling)
395.41 .... Based on bandwidth allocation (e.g., Weighted Round Robin)
395.42 .... Based on priority
395.43 ..... Based on service category (e.g., CBR, VBR, UBR, or ABR)
395.5 ... Multiprotocol network
395.51 .... Utilizing a plurality of ATM networks (e.g., MPOA, SONET, or SDH)
395.52 .... Internet Protocol (including TCP/IP or UDP/IP) over fixed length packet network (e.g., IP over ATM)
395.53 .... Emulated LAN (LANE/ELAN/VLAN, e.g., Ethernet or token ring legacy LAN over a single ATM network/LAN)
395.54 .... Address resolution (e.g., ARP, or NHRP)
395.6 ... Adapting detail (e.g., converting to/from ATM, or detail of ATM Adaption Layers (AALs))
395.61 .... Adapting constant bit rate (CBR) data (e.g., voice, or narrow band ISDN over ATM, or using AAL1)
395.62 ..... Detail of clock recovery or synchronization
395.63 .... Adapting frame relay/X.25 data (e.g., using AAL 3/4)
395.64 .... Adapting connection-oriented variable bit rate (VBR) data (e.g., MPEG/HDTV packet video/audio over ATM or using AAL2)
395.65 .... Adapting connectionless variable bit rate (VBR) data (e.g., adapting 802.X, or using AAL5)
395.7 ... Having detail of switch memory reading/writing
395.71 .... Having input or output storage or both
395.72 .... Having central (e.g., common) storage
400 .. Having a plurality of nodes performing distributed switching
401 ... Bridge or gateway between networks
402 .... Bridge between bus systems
403 ..... At least one bus is a ring network
404 .....·. Ring or loop forms backbone for interconnecting other networks
405 .....·.. The other networks are ring or loop networks

406 ... Plurality of rings or loops to form a mesh network
407 ... Interconnected star couplers
408 ... Nodes interconnected in hierarchy to form a tree
409 ... Employing logical addressing for routing (e.g., VP or VC)
410 ... Having a signaling feature
411 .. Including sorting and merging networks
412 .. Queuing arrangement
413 ... Having both input and output queuing
414 .... Contention resolution for output
415 ... Having input queuing only
416 .... Contention resolution for output
417 ... Having output queuing only
418 .... Contention resolution for output
419 .. Input or output circuit, per se (i.e., line interface)
420 ... For connecting plural subscribers to a network (i.e., network termination)
421 .... Subscribers connected to input or output circuit by a common bus
422 .. Centralized switching
423 ... Including a bus for interconnecting inputs and outputs
424 .... Including a ring or loop for interconnecting inputs and outputs
425 ... Star configuration
426 ... Having a signaling feature
427 .. Space switching
428 . Store and forward
429 .. Particular storing and queuing arrangement
430 . FDM switching
431 **CHANNEL ASSIGNMENT TECHNIQUES**
432 . Messages addressed to multiple destinations
433 . Only active channels transmitted
434 .. Concentrator
435 ... TASI (Time Assignment Speech Interpolation)
436 . Combined time and frequency assignment
437 . Adaptive selection of channel assignment technique
438 . Using a separate control line or bus for access control
439 .. Control line is used to request or reserve access
440 ... Dual bus dynamic queuing (i.e., DQDB)
441 . Combining or distributing information via code word channels using multiple access techniques (e.g., CDMA)
442 . Combining or distributing information via time channels using multiple access technique (e.g., TDMA)
443 .. Using channel reservation
444 ... With priority resolution

445 . Carrier sense multiple access (CSMA)
446 .. Using a star coupler
447 .. Arbitration for access between contending stations
448 ... Using weighted back-off timing
449 . Polling
450 .. Passing a signal identifying the idle or busy state of a channel (e.g., token passing)
451 ... On bus
452 .... On ring or loop
453 ..... Initialization or reinitialization of network
454 ..... Having multiple idle or busy signals simultaneously on the network
455 ..... Including priority resolution
456 ..... Idle or busy signal erasure or frame erasure
457 ... Initialization or reinitialization of network
458 . Using time slots
459 .. Having indication of idle or busy state of time slot
460 ... On ring or loop network
461 .. Arbitration for access between contending stations
462 . Arbitration for access to a channel
463 . Details of circuit or interface for connecting user to the network
464 **COMMUNICATION TECHNIQUES FOR INFORMATION CARRIED IN PLURAL CHANNELS**
465 . Adaptive
466 .. Converting between protocols
467 ... Conversion between signaling protocols
468 .. Assignment of variable bandwidth or time period for transmission or reception
469 .. Processing multiple layer protocols
470 .. Frame length
471 ... Message having an address header
472 .. Byte length
473 .. Transmission of a single message having multiple packets
474 . Assembly or disassembly of messages having address headers
475 . Address transmitted
476 . Byte assembly and formatting
477 . Transmission bandwidth conservation
478 . Combined time division and frequency division
479 . Combining or distributing information via code word channels
480 . Combining or distributing information via frequency channels
481 .. Multiple frequency translations
482 .. Particular carrier generation
483 .. Using angle modulation
484 .. Digital analysis or synthesis of a group

485 .. Subscriber carrier
486 ... Program distribution
487 .... Combined communication of diverse information types
488 ... Connecting filters
489 .. Bus (distributed stations)
490 ... Combined communication of diverse information types
491 .. Pilot
492 .. Repeater
493 .. Combined voice and data transmission
494 ... Data over voice
495 ... Data under voice
496 .. Signaling
497 .. Using particular filtering technique
498 . Combining or distributing information via time channels
499 .. Polarity multiplex
500 .. Pilot
501 .. Repeater
502 ... Bus extenders
503 .. Synchronizing
504 ... Reference indication consists of a gap
505 ... Pulse stuffing or deletion
506 .... Frame or bit stream justification
507 ... Mutual (reciprocal) synchronization
508 .... Transmission time into time slots adjusted based upon propagation delay time
509 ... Using synchronization information contained in a frame
510 .... Synchronization information is distributed over multiple frames
511 ..... Using redundant synchronization words
512 .... Synchronization information is distributed within a frame
513 ..... Plural synchronization words
514 .... Unique synchronization word or unique bit sequence
515 ..... Pseudo-random
516 ... Adjusting for phase or jitter
517 .... Including delay device
518 ..... Provide plural phases of a clocking signal
519 ..... Delay based upon propagation delay time
520 ... Unique synchronization pulse
521 .. Time compression or expansion
522 .. Signaling (ancillary to main information)
523 ... Using bit robbing
524 ... Using a dedicated signaling channel (i.e., D-channel)
525 ... Digital tone signal generation
526 ... Digital tone detection

527 ... Superimposed or modulated on principal information
528 ... Inserted in gaps in main information
529 .. Information superimposed on other information
530 .. Staircase wave
531 .. Magnetic core for switching or storage
532 .. Multiplexer or distributor and technique for handling low level input signal
533 .. Multiplexer or distributor using pulse amplitude modulation
534 .. Multiplexer or distributor using electron beam switching device
535 .. Multiplexing combined with demultiplexing
536 .. Demultiplexing single signal into plural parallel channels (e.g., parallel transmission for increasing transmission speed)
537 .. Multiplexing plural input channels to a common output channel
538 ... Plural input channels of different rates to a single common rate output channel
539 .... Multiple levels of multiplexing to form a multiplex hierarchy
540 ... Plural input channels of same rate to a single common rate output channel
541 .... Multiple levels of multiplexing to form a multiplex hierarchy
542 .. Demultiplexing single input channel to plural output channels
543 ... Different rate output channels
544 ... Same rate output channels
545 .. Conversion of rate from a single input to a single output
546 **MISCELLANEOUS**

CROSS-REFERENCE ART COLLECTIONS

901 **WIDE AREA NETWORK**
902 . Packet switching
903 .. OSI Compliant Network
904 ... Integrated Services Digital Network (ISDN)
905 ... Asynchronous Transfer Mode (ATM)
906 ... Fiber Data Distribution Interface (FDDI)
907 ... Synchronous Optical network (SONET)
908 **LOCAL AREA NETWORK**
909 . Token ring
910 . Carrier sense multiple access (e.g., Ethernet, 10Base-T)
911 . Bridge (e.g., brouter, bus extender, etc.)
912 **PACKET COMMUNICATIONS**
913 . Wireless or radio
914 **RATE CONVERTER**
915 **TIME DIVISION CELLULAR RADIO SYSTEMS**
916 **MULTIPLEXER/DEMULTIPLEXER**

FOREIGN ART COLLECTIONS

FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collection listed below. These collections contain ONLY foreign patents or nonpatent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 100 **SIMULTANEOUS TELEGRAPHY AND TELEPHONY (370/125)**

FOR 101 **MULTIPLEX SWITCHING (370/53)**

FOR 102 . Pathfinding (370/54)

FOR 103 . Drop channel (370/55)

FOR 104 . Concentrators (370/56)

FOR 105 . FDM switching (frequency division multiplexing) (370/57)

FOR 106 . TDM switching (time division multiplexing) (370/58.1)

FOR 107 .. Control processing (370/58.2)

FOR 108 ... Distributed (370/58.3)

FOR 109 .. T-S (Time-Space) or S-T (370/59)

FOR 110 .. Packet or addressed data (370/60)

FOR 111 ... Combined with circuit-switching (370/60.1)

FOR 112 .. Store and forward (370/61)

FOR 113 .. Special services with switching (e.g., conference) (370/62)

FOR 114 .. TST (Time-Space-Time) (370/63)

FOR 115 .. STS (Space-Time-Space) (370/64)

FOR 116 .. Folded network (370/65)

FOR 117 .. Space stage, per se (370/65.5)

FOR 118 .. Time only (370/66)

FOR 119 ... Bus switch (370/67)

FOR 120 .. Time slot interchangers, per se (370/68)

FOR 121 .. With signalling feature (370/68.1)

FOR 122 **FREQUENCY DIVISION (370/69.1)**

FOR 123 . Multiple frequency translations (370/120)

FOR 124 . Carrier generation (370/121)

FOR 125 . Angle modulation (370/122)

FOR 126 . Filtering techniques (370/123)

FOR 127 . Digital analysis or synthesis of group (370/70)

FOR 128 . Subscriber carrier (370/71)

FOR 129 .. Connecting filters (370/72)

FOR 130 .. Program distribution (370/73)

FOR 131 . Bus (distributed stations) (370/124)

FOR 132 . Pilot (370/74)

FOR 133 . Repeaters (370/75)

FOR 134 . Signalling (370/76)

FOR 135 **TIME DIVISION (370/77)**

FOR 136 . Polarity multiplex (370/78)

FOR 137 . Adaptive systems (370/79)

FOR 138 .. Only active channels transmitted (370/80)

FOR 139 ... TASI (Time assigned speech interpolation) (370/81)

FOR 140 .. Frame length (370/82)
FOR 141 .. Byte length (370/83)
FOR 142 .. Rate (370/84)
FOR 143 . Bus transmission (370/85.1)
FOR 144 .. Contention (370/85.2)
FOR 145 ... Carrier sense (370/85.3)
FOR 146 ... Token passing (370/85.4)
FOR 147 .... Loop or ring (370/85.5)
FOR 148 .. Priority (370/85.6)
FOR 149 .. Variable channel assignment (370/85.7)
FOR 150 ... Polling (370/85.8)
FOR 151 .. Plural bus (370/85.9)
FOR 152 ... With separate control bus (370/85.11)
FOR 153 ... Loop or ring (370/85.12)
FOR 154 ... Bridge between bus systems (370/85.13)
FOR 155 .... Interconnection between ring or loop (370/85.14)
FOR 156 .. Loop or ring (370/85.15)
FOR 157 . Asynchronous and nonsynchronous (370/91)
FOR 158 .. Address transmitted (370/92)
FOR 159 ... Multiple access, discrete address (370/93)
FOR 160 ... Packet (370/94.1)
FOR 161 .... Combined with synchronous information (370/94.2)
FOR 162 .... Star, tree, or mesh networks (370/94.3)
FOR 163 . Variable channel assignment (370/95.1)
FOR 164 .. Polling (370/95.2)
FOR 165 .. Time division multiple access (370/95.3)
FOR 166 . TDM pulse repeater (370/97)
FOR 167 . Pilot (370/98)
FOR 168 . Byte assembly and formatting (370/99)
FOR 169 . Synchronizing (370/100.1)
FOR 170 .. Reference indication consists of a gap (370/101)
FOR 171 .. Pulse stuffing or deletion (370/102)
FOR 172 .. Mutual (reciprocal) synchronization (370/103)
FOR 173 .. Moving satelite (370/104.1)
FOR 174 .. Distributed (370/105)
FOR 175 .. Frame (370/105.1)
FOR 176 .. Channel (370/105.2)
FOR 177 .. Bit phase or jitter (370/105.3)
FOR 178 .. Unique synchronization word (370/105.4)
FOR 179 .. Unique sychronization pulse (370/105.5)
FOR 180 .. Plural sychronizing words (370/106)
FOR 181 .. Pseudo-random (370/107)
FOR 182 .. Including delay device (370/108)
FOR 183 . Time compression or expansion (370/109)
FOR 184 . Signalling (ancilliary to main information) (370/110.1)
FOR 185 .. Digital tone signal generation (370/110.2)

FOR 186 .. Digital tone detection (370/110.3)

FOR 187 .. Superimposed or modulated on principal information (370/110.4)

FOR 188 .. Inserted in gaps in main information (370/111)

FOR 189 . Multiplexers/distributors (hierarchy and level) (370/112)

FOR 190 .. Apparatus and techniques for handling low level input signals (370/113)

FOR 191 .. Pulse amplitude modulation (370/114)

FOR 192 .. Electron beam switching device (370/115)

FOR 193 . Staircase wave (370/116)

FOR 194 . Magnetic core for switching or storage (370/117)

FOR 195 **TRANSMISSION BANDWIDTH CONSERVATION (370/118)**

FOR 196 **MISCELLANEOUS (370/119)**

PATHFINDING OR ROUTING

. Switching a message which includes an address header

FOR 197 .. Message transmitted using regularly occurring fixed length time intervals (e.g., ATM) (370/395)

CLASS 714 ERROR DETECTION/CORRECTION AND FAULT DETECTION/RECOVERY

100 **DATA PROCESSING SYSTEM ERROR OR FAULT HANDLING**

1 . Reliability and availability

2 .. Fault recovery

3 ... By masking or reconfiguration

4 .... Of network

5 .... Of memory or peripheral subsystem

6 ..... Redundant stored data accessed (e.g., duplicated data, error correction coded data, or other parity-type data)

7 .....·. Reconfiguration (e.g., adding a replacement storage component)

8 ..... Isolating failed storage location (e.g., sector remapping)

9 ..... Access processor affected (e.g., I/O processor, MMU, DMA processor)

10 .... Of processor

11 ..... Concurrent, redundantly operating processors

12 .....·. Synchronization maintenance of processors

13 ..... Prepared backup processor (e.g., initializing cold backup) or updating backup processor (e.g., by checkpoint message)

14 .... Of power supply

15 ... State recovery (i.e., process or data file)

16 .... Forward recovery (e.g., redoing committed action)

17 ..... Reexecuting single instruction or bus cycle

18 .... Transmission data record (e.g., for retransmission)

19 .... Undo record

20 .... Plural recovery data sets containing set interrelation data (e.g., time values or log record numbers)

21 .... State validity check

22 .... With power supply status monitoring

23 ... Resetting processor

24 ... Safe shutdown

25 .. Fault locating (i.e., diagnosis or testing)

26 ... Artificial intelligence (e.g., diagnostic expert system)

27 ... Particular access structure

28 .... Substituted emulative component (e.g., emulator microprocessor)

29 ..... Memory emulator feature

30 .... Built-in hardware for diagnosing or testing within-system component (e.g., microprocessor test mode circuit, scan path)
31 .... Additional processor for in-system fault locating (e.g., distributed diagnosis program)
32 ... Particular stimulus creation
33 .... Derived from analysis (e.g., of a specification or by stimulation)
34 .... Halt, clock, or interrupt signal (e.g., freezing, hardware breakpoint, single-stepping)
35 .... Substituted or added instruction (e.g., code instrumenting, breakpoint instruction)
36 .... Test sequence at power-up or initialization
37 ... Analysis (e.g., of output, state, or design)
38 .... Of computer software
39 .... Monitor recognizes sequence of events (e.g., protocol or logic state analyzer)
40 ... Component dependent technique
41 .... For reliability enhancing component (e.g., testing backup spare, or fault injection)
42 .... Memory or storage device component fault
43 .... Bus, I/O channel, or network path component fault
44 .... Peripheral device component fault
45 ... Output recording (e.g., signature or trace)
46 ... Operator interface for diagnosing or testing
47 .. Performance monitoring for fault avoidance
48 .. Error detection or notification
49 ... State error (i.e., content of instruction, data, or message)
50 .... State out of sequence
51 ..... Control flow state sequence monitored (e.g., watchdog processor for control-flow checking)
52 ..... Error checking code
53 .... Address error
54 .... Storage content error
55 ... Timing error (e.g., watchdog timer time-out)
56 .... Bus or I/O channel device fault
57 ... Error forwarding and presentation (e.g., operator console, error display)
699 **PULSE OR DATA ERROR HANDLING**
700 . Skew detection correction
701 . Data formatting to improve error detection correction capability
702 .. Memory access (e.g., address permutation)
703 . Testing of error-check system
704 . Error count or rate
705 .. Pseudo-error rate
706 .. Up-down counter
707 .. Synchronization control

708 .. Shutdown or establishing system parameter (e.g., transmission rate)
709 . Data pulse evaluation/bit decision
710 . Replacement of memory spare location, portion, or segment
711 .. Spare row or column
712 . Transmission facility testing
713 .. For channel having repeater
714 .. By tone signal
715 .. Test pattern with comparison
716 ... Loop-back
717 .. Loop or ring configuration
718 . Memory testing
719 .. Read-in with read-out and compare
720 ... Special test pattern (e.g., checkerboard, walking ones)
721 .. Electrical parameter (e.g., threshold voltage)
722 .. Performing arithmetic function on memory contents
723 .. Error mapping or logging
724 . Digital logic testing
725 .. Programmable logic array (PLA) testing
726 .. Scan path testing (e.g., level sensitive scan design (LSSD))
727 ... Boundary scan
728 ... Random pattern generation (includes pseudorandom pattern)
729 ... Plural scan paths
730 ... Addressing
731 ... Clock or synchronization
732 .. Signature analysis
733 .. Built-in testing circuit (BILBO)
734 .. Structural (in-circuit test)
735 .. Device response compared to input pattern
736 .. Device response compared to expected fault-free response
737 .. Device response compared to fault dictionary/truth table
738 .. Including test pattern generator
739 ... Random pattern generation (includes pseudorandom pattern)
740 ... Having analog signal
741 ... Simulation
742 ... Testing specific device
743 ... Addressing
744 ... Clock or synchronization
745 .. Determination of marginal operation limits
746 . Digital data error correction
747 .. Substitution of previous valid data
748 .. Request for retransmission
749 ... Retransmission if no ACK returned

750 ... Feedback to transmitter for comparison
751 ... Including forward error correction capability
752 .. Forward correction by block code
753 ... Double error correcting with single error correcting code
754 ... Error correction during refresh cycle
755 ... Double encoding codes (e.g., product, concatenated)
756 .... Cross-interleave Reed-Solomon code (CIRC)
757 ... Parallel generation of check bits
758 ... Error correcting code with additional error detection code (e.g., cyclic redundancy character, parity)
759 ... Look-up table encoding or decoding
760 ... Threshold decoding (e.g., majority logic)
761 ... Random and burst error correction
762 ... Burst error correction
763 ... Memory access
764 .... Error correct and restore
765 .... Error pointer
766 .... Check bits stored in separate area of memory
767 .... Code word for plural n-bit (n>1) storage units (e.g., x4 DRAM's)
768 .... Error correction code for memory address
769 .... Dynamic data storage
770 ..... Disk array
771 ..... Tape
772 .... Code word parallel access
773 .... Solid state memory
774 ... Adaptive error-correcting capability
775 ... Synchronization
776 ... For packet or frame multiplexed data
777 ... Hamming code
778 ... Nonbinary data (e.g., ternary)
779 ... Variable length data
780 ... Using symbol reliability information (e.g., soft decision)
781 ... Code based on generator polynomial
782 .... Bose-Chaudhuri-Hocquenghem code
783 .... Golay code
784 .... Reed-Solomon code
785 .... Syndrome computed
786 .. Forward error correction by tree code (e.g., convolutional)
787 ... Random and burst errors
788 ... Burst error
789 ... Synchronization
790 ... Puncturing
791 ... Sequential decoder (e.g., Fano or stack algorithm)
792 ... Trellis code

793 ... Syndrome decodable (e.g., self orthogonal)
794 ... Maximum likelihood
795 ... Viterbi decoding
796 ... Branch metric calculation
797 .. Majority decision/voter circuit
798 . Error detection for synchronization control
799 . Error/fault detection technique
800 .. Parity bit
801 ... Parity generator or checker circuit detail
802 ... Even and odd parity
803 ... Parity prediction
804 ... Plural dimension parity check
805 ... Storage accessing (e.g., address parity check)
806 .. Constant-ratio code (m/n)
807 .. Check character
808 ... Modulo-n residue check character
809 .. Code constraint monitored
810 ... Multilevel coding (n>2)
811 .. Forbidden combination or improper condition
812 ... Specified digital signal or pulse count
813 ... Two key-down detector
814 ... Data timing/clocking
815 ... Time delay/interval monitored
816 ... Two-rail logic
817 ... Noise level
818 ... Missing-bit/drop-out detection
819 .. Comparison of data
820 ... Plural parallel devices of channels
821 .... Transmission facility
822 ... Sequential repetition
823 .... True and complement data
824 ... Device output compared to input

FOREIGN ART COLLECTIONS

FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collection listed below. These collections contain ONLY foreign patents or nonpatent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

MEMORY TESTING (371/21.1)
DIGITAL LOGIC TESTING (371/22.1)
DIGITAL DATA ERROR CORRECTION (371/30)

FOR 100 . Scan path testing (LSSD) (371/22.3)
FOR 101 . Including test pattern generator (371/27)
FOR 102 . Block code (371/37.1)
FOR 103 .. Memory access (371/40.1)
FOR 104 . Convolutional code (371/43)
FOR 288 **ERROR/FAULT ANTICIPATION (371/4)**
. Replacement with spare device or system (371/8.1)

FOR 289 .. Transmission facility or channel (371.8.2)
FOR 290 .. Memory (371/10.1)
FOR 291 .. Transmission facility (371/11.2)
FOR 292 .. Data processor or computer (371/11.3)

DIAGNOSTIC TESTING (371/15.1)

FOR 293 . Programmable processor testing (371/16.1)
FOR 294 .. Emulator device (371/16.2)
FOR 295 .. Watchdog timer (e.g., time-out) (371/16.3)
FOR 296 .. Processor within diverse (microwave, photocopier) (371/16.4)
FOR 297 .. Error or fault, logging or tracking (371/16.5)
FOR 298 .. Dedicated maintenance subsystem (371/18)
FOR 299 . Testing of external device by programmable digital computer (371/20)
FOR 300 **ERROR DETECTION FOR SYNCHRONIZATION CONTROL (371/47.1)**